

REMARKS/ARGUMENTS

Favorable reconsideration of this Application, as presently amended and in light of the following discussion, is respectfully requested.

This Amendment is in response to the Office Action mailed on October 23, 2003. Claims 1-12 are pending in the application and stand rejected. Claims 1-12 are amended and new Claims 13-20 are added by the present amendment.

Claims 1-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mercil (U.S. Patent No. 4,427,154, hereinafter "Mercil") in view of Richard (U.S. Patent No. 4,642,830, hereinafter "Richard").

Applicants respectfully submit that Mercil and Richard, individually or in any combination thereof, do not support a *prima facie* case of obviousness of the invention recited in the presently amended independent Claim 1 for at least two reasons. First, this is so because, even when combined, these prior art references do not teach or suggest all the claim limitations recited therein. Secondly, there is no suggestion or motivation to modify the references or to combine the references' teachings.

According to a feature of the invention as set forth in the presently amended Claim 1, a method is recited, comprising, among other limitations, forming two flat ladders, each ladder consisting of an upper beam connected to a lower beam by girders, producing lower crossbeams, and assembling the two ladders and the lower crossbeams to form a three-dimensional structure.

As disclosed in the Specification, the manufacture of conventional triangular lattice structure for spray booms is plagued with several problems, including, but not limited to, difficulty in positioning and connecting several beams together and connecting them, and the need to make very specialized cuts in each of the girders, including cutting the end of girders to be inclined in two directions with respect to a plane perpendicular to its longitudinal axis

(Specification, page 1, line 13 – page 2, line 24). It is clear that such a complex structure is cumbersome and expensive to manufacture.

The present invention discloses a novel and advantageous method to manufacture spray booms that is less complicated and less expensive than conventional approaches by arranging the girders in a single plane with the support beams and inclining the end of each girder in at most a single direction with respect to a plane perpendicular to its longitudinal axis (*Id.*, page 2, lines 5-21), making it simpler to cut each of the crossbeams (*Id.*, page 7, lines 3-9). Applicants respectfully submit that the presently amended Claim 1 more clearly recite such a spray boom.

Mercil has been cited for teaching a spray boom for agricultural spraying purposes comprising identical frames. The outstanding Office Action acknowledges that Mercil fails to teach a boom having two flat ladders consisting of an upper beam connected to a lower beam by girders to form a three dimensional structure. It is clear from FIG. 1 in Mercil that the disclosed spray boom is two dimensional in nature.

Richard discloses a prefabricated three-dimensional concrete truss structure for a bridge. The bars in the truss are formed from prestressed, high-strength concrete that are connected at their ends with assembly blocks that are prestressed, the prestress being preferably provided by the cables that prestress the bars, and which terminate at the blocks (Richard, Abstract, emphasis added).

The outstanding Office Action asserts that Richard teaches two flat ladders connected to a lower beam, forming a three dimensional structure having a triangular cross section. Applicants respectfully disagree. Richard teaches placing various beams in their relative position, then connecting them to one another by means of assembly blocks (Richard, Col. 3, lines 17-23). Applicants respectfully submit that such a structure is not flat.

Based on the foregoing summary of the teachings of the cited references, Applicants respectfully submit that the combination of Mercil and Richard, individually or in any combination thereof, do not make obvious the invention recited in the presently amended Claim 1 because the combination fails to teach or disclose forming two flat two ladders, each ladder consisting of an upper beam connected to a lower beam by girders, producing lower crossbeams, and assembling the two ladders and the lower crossbeams to form a three-dimensional structure. Furthermore, Claims 2-12 are allowable, among other reasons, as depending directly from claim 1, which is allowable.

In addition, as the subject matter recited in Claim 2, Applicants respectfully submit that Mercil and Richard does not obviate a three-dimensional spray boom having a triangular cross section. In light of FIG. 1 of Richard, the structure therein adopts a transverse section shaped like a trapezoidal defined by, for example, the points J, H, C, and D. Applicants respectfully submit that such a structure does not have a triangular cross section and, therefore, cannot obviate the invention recited in Claim 2.

As to the motivation to combine the references, Applicants respectfully submit that none substantial was provided in the outstanding Office Action. Applicants respectfully submit that one of ordinary skill in the art would not be motivated to make the two-dimensional light structure of Mercil into a three dimensional concrete structure of Richard because by doing so, it would make the structure in Mercil unsatisfactory for its intended use. That is, making the structure of Mercil using the concrete trusses of Richard would result in a spray boom so heavy and cumbersome to use that it would not have any utility whatsoever. A conclusion to the contrary can only be reasonably explained by the use of impermissible hindsight.

For the foregoing remarks, Applicants respectfully request that the Examiner withdraw the rejection of Claims 1-12 under 35 U.S.C. § 103(a).

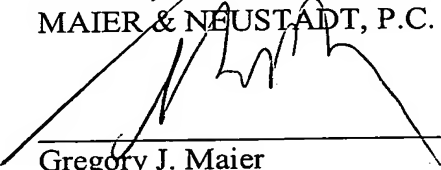
Applicants have submitted herein new Claims 13-20. New independent Claim 13 recited a method for manufacturing a spray boom, comprising forming two flat ladders comprising upper and lower hollow beams connected to each other by girders and assembling them with lower crossbeams to form a three-dimensional structure. Claim 15 further limits the invention of Claim 13 by reciting that a triangular cross section is substantially isosceles. Claim 16 recites that hollow beam sections are square tubes. Support for the subject matter of Claims 13, 15, and 16 are found in the originally filed claims and in Applicants' Specification on pages 6, lines 1-8 and on page 6, lines 18-21. Claim 17 recites a method for manufacturing a spray boom, comprising forming two flat ladders in a longitudinal direction of the spray boom, each ladder comprising upper and lower hollow beams connected by girders and assembling them with lower crossbeams to form a three-dimensional structure having a triangular cross section in a plane substantially perpendicular to said longitudinal direction. Support for Claim 17 is found in the originally filed claims and on the materials supporting Claims 13, 15, and 16. Claims 18-20 are similarly supported by the subject matter originally claimed and the subject matter of new Claims 15 and 16.

Applicants respectfully submit that Mercil and Richard, individually or in any combination thereof, cannot support a finding of obviousness of the new independent Claims 13 and 17. The beams in Claims 13 and 17 are recited as being hollow. The concrete bars of Richard are solid bars as illustrated in FIG. 4 of that reference. Applicants respectfully submit that new Claims 13 and 17 patently distinguish over Mercil and Richard. In addition, Claims 14-16 and 18-20 are also patently distinguishing from Mercil and Richard due to their dependency on Claims 13 and 17, respectively. Therefore, new Claims 13-20 should be passed to issuance in view of Mercil and Richard.

Based at least on the foregoing reasons, Applicants believe the present application is in condition for allowance and respectfully solicit an early Notice of Allowability of Claims 1-20.

Respectfully submitted,

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